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CHAPTER FIVE

BUG-HUNTING EDITORS: COMPETING INTERPRETATIONS OF NATURE IN LATE NINETEENTH-CENTURY NATURAL HISTORY PERIODICALS

JAMES MUSSELL

For many late nineteenth-century naturalists the experience of being in the field was as important as what was found there, and natural history could encompass observations of live creatures made outdoors as well as examinations of specimens made indoors under more controlled conditions. The late nineteenth-century natural history magazines reflect this diversity, presenting nature through a range of practices, results, and natural phenomena. Drawing upon three of these magazines—*Hardwicke's Science-Gossip*, *British Naturalist*, and the *Naturalist's Journal*—this chapter explores the conflicts that can arise between these sometimes contradictory representations of nature, and the expectations of readers in the competitive periodical marketplace.

As most natural history periodicals depended on contributions from the various communities of naturalists for copy, their editors and proprietors were compelled to acknowledge the diverse practices of their readers, even though they necessarily employed different interpretations of nature. This differs from the way space is produced in the emblematic institutionalized space of the laboratory. In the Afterword to *Making Space for Science: Territorial Themes in the Shaping of Knowledge*, Alex Dolby notes:

[T]he more closely scientific knowledge is thought to be anchored in the practices of a particular place, the more problematic it becomes to see how it can transfer to another somewhat different locality. (Dolby 1998, 334)

Laboratory practice aims to produce a space for scientific work that is not restricted to its location: the use of standards, the calibration of instruments, and the routines within the laboratory, all aim to efface local conditions in order to

produce information about an object or phenomena that is independent of its immediate environment (Latour 1987; 1999). Publications such as textbooks and journals play an important part in disseminating practice and communicating results: as reproducible objects that are both portable and fairly stable over time, they can link and co-ordinate the distributed activities of researchers and provide a forum for the exchange of information.

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Many of the contributors to the late nineteenth-century natural history magazines, and the majority of their editors and proprietors, were drawn from the same community of entomologists. For these readers the journals played an important role in uniting a distributed network of like-minded naturalists. However, the commercial reality of the periodical market meant that the journals had to address a diverse set of readers, many of whom practiced very different forms of natural history. Rather than distribute a shared set of practices that would produce a shared scientific space, these titles were compelled to present nature as multi-faceted. As a single number of a periodical is composed of a range of different contributions, the magazines could comfortably accommodate this dual role, appealing to a range of different readers while simultaneously addressing discrete communities. However, from 1896 the editor and proprietor of the *Naturalist's Journal*, Seth Lister Mosley, rejected the pluralist model of his competitors and adopted a different strategy. By using his publications to bind his readers to him, Mosley attempted to elide the gap between the time and space of writing and the time and space of reading, and so create a contemporaneous and unified amateur scientific domain that would testify to the glory of God.

Natural history formed an important part of late nineteenth-century periodical culture, appearing in both specialist journals as well as a range of more general scientific and non-scientific titles. Three of the most successful magazines specializing in natural history were the *British Naturalist* (1879-94), *Hardwicke's Science-Gossip* (1865-1902), and the *Naturalist's Journal* (1892-1903). However, the market for specialist natural history journals was small and, in the 1890s, all three titles experienced difficulties. Indeed, the recurrence of names across these titles reveals the small pool of personnel responsible for their production, and the frequent changes in format reflects the difficulties editors had in identifying and sustaining readerships. By the 1890s all three were monthlies, and all had strong connections with the various natural history societies. They were also all dominated by entomology, whether in terms of their contributors and staff, or in the subjects most often under discussion in their pages.

This partly reflects the large proportion of entomologists within natural history societies. Entomology lends itself to amateur study as it is grounded in taxonomy and insects are available everywhere. Despite this, entomology was slightly marginalized within wider cultures of natural history. Whereas the study of vertebrates had its roots in hunting, entomology was a largely taxonomic practice that involved the ungainly capturing of small and often overlooked creatures for its own pleasures (Allen 1994, 136-37). Its popularity sustained a substantial market in specimens, tools, illustrations, publications, and other paraphernalia that kept many entomologists funded: but the circulation of these objects—especially the journals—also played an important social role, identifying entomologists to one another and allowing them to share classifications and standardize results (Larson 1996, 373).

The *Young Naturalist* was started in 1879 as a penny octavo weekly by John E. Robson and Seth Lister Mosley, both entomologists from Hartlepool and Huddersfield, respectively, in order to cultivate a taste for natural history as a means of rational recreation for young men (Anon. [Mosley and Robson] 1879, 1). Mosley, a self-educated artisan, had previously been exposed to this ideology when he complemented the natural history learned from his father with classes at the Huddersfield Secular Society and Huddersfield Mechanics' Institution. However, by the end of the first volume the editors were reconsidering their audience: leading articles began to be addressed to readers "both young and old"; the rhetoric of youth was tempered to that of "beginners"; and, in the number for September 11, 1880, the editors identify school teachers among their intended audience (Anon. [Mosley] 1880a, 278; Anon. [Mosley] 1880b, 361-63). Instead of finding a readership amongst the young men they originally sought, Mosley and Robson increasingly targeted an audience of male naturalists, eager for a cheap medium of exchange both for observations and specimens.

It was the identification of the naturalists as the journal's readers that prompted the change of title in 1890 to *British Naturalist*. Mosley, who I return to below, had left the periodical in 1882 to concentrate on other projects in Huddersfield. Robson, now sole editor, was a Fellow of the Entomological Society of London, and it is to his colleagues that the journal was aimed. The cover of volume eleven, the last as the *Young Naturalist*, gives the names of fifteen sub-editors, seven of which are Fellows of the Entomological Society. Of the remainder, two became Fellows in the following year, and two were active in local Field Clubs. All those who were Fellows of the Entomological Society also had positions in local Field Clubs and, perhaps unsurprisingly, the only proceedings of societies noted in the volume are those of which the contributors are members: the City of London Entomological and Natural History Society; the Lancashire and Cheshire Entomological Society; South London

Entomological and Natural History Association; and, above all, the Entomological Society of London. By 1890 the *British Naturalist* was a sixpenny, twenty page monthly and was published by Sonnenschein and Co., who also advertise their natural history publications in its wrapper. The new periodicity and price further link it with the entomological community: each number could now contain the news from all the societies; and, even though the increased price was only a little more than the cost of four weekly penny numbers, the links with the societies meant paying it might be avoided through networks of inter-society exchange.

Entomologists also dominate the other two titles. *Hardwicke's Science-Gossip* was launched by the publisher and botanist Robert Hardwicke and the mycologist Mordecai Cubbitt Cooke in 1865 (fig. 2.1). From 1872 it was edited by John Ellor Taylor, an entomologist, Fellow of the Linnaean and Geological Societies, and Assistant Secretary at the British Museum (Natural History) who achieved literary success with his best-selling *Collecting and Preserving Natural History Objects* in 1876. *Science-Gossip* was a fourpenny monthly but, at this price, Taylor could not make it pay and he was forced to cease publication in August 1893 because of a combination of financial difficulties and ill-health. It was resurrected the following March by J. T. Carrington and Edward Step, two entomologists who had both held the Presidency of the South London Entomological and Natural History Society. After its re-birth, Carrington (1894, 1) claimed it would be the "British naturalist's medium," and includes within this readership the whole sweep of naturalists from dilettante amateurs to what he calls "philosophers of science." Within a year Step had left, and Carrington began to target a more delimited portion of the naturalist community: in a note appended to the index issued at the close of the volume, he claims that as "*Science-Gossip* is eminently a beginner's and amateur's journal, so we hope to hear more frequently from them, than has been the case during the year now closing" (Carrington 1895, n.s. unpag.). Aware that the community of naturalists—now explicitly designated as "amateur"—would provide not only a loyal readership, but also free copy, Carrington, drawing on his experiences editing the *Zoologist* and the *Entomologist* in the 1860s and 1870s, encourages these readers once more.



Fig. 2.1: Cover, *Hardwicke's Science-Gossip*. April 28, 1892.

The *Naturalists' Journal* was founded by the young ornithologist Harry Kirke Swann in July 1892 as a competitor to the *British Naturalist*. The two titles share the same typography, paper size, periodicity, and generic content, but the *Naturalists' Journal* was both shorter and cheaper than its rival, having only sixteen pages (including four pages of advertisements) for a penny compared to the *British Naturalist's* twenty-two pages (with at least two pages of adverts) for sixpence. In January 1893 the *Naturalists' Journal* became the

textual medium for the Practical Naturalists' Society and that September Swann hired Albert H. Waters, the Assistant to the Secretary of the Society, and A. Ford, a frequent contributor, as assistant editors, introduced a blue wrapper, and raised the price to tuppence (Anon. 1893, 74-75). The new editors were both entomologists and already prominent figures within natural history publishing: Waters had previously edited the *Garner and Naturalist's Gazette*, and both had contributed to the *Young Naturalist*. In August 1894 Seth Lister Mosley—the founding editor of its rival, the *Young Naturalist*—joined the *Naturalists' Journal* as editor, with Waters becoming the Managing Editor (Anon. [Ford and Waters] 1894, 48). In 1877 Mosley had given up working as a painter-decorator to devote himself to natural history. He earned a living selling his paintings of natural objects, and with the money turned his house into a museum and a temperance refreshment room.

In between leaving the *Young Naturalist* and joining the *Naturalists' Journal*, Mosley had attempted many publishing projects including *The Home*, a monthly "Guide-Book to a Life Worth Living" for women, and the more technical *Naturalists' Guide to Systematic and Economic Natural History*, which included high-quality, hand-colored plates for an annual subscription of 10s (Anon. [Mosley] 1898a, 183-90; Mosley 1896a, 1-28; Alberti 2000, 185-97; Davies 1992, 680-701). Mosley's interest in economic natural history stemmed from his correspondence with Eleanor A. Ormerod, the Honorary Consulting Entomologist to the Royal Agricultural Society, after reading her *Notes for Observations of Injurious Insects* in 1877. Immediately on joining the *Naturalists' Journal* Mosley introduced an "Economic Department" as a supplement, hoping that it would pay for itself by raising an extra three thousand subscribers. However, the gamble did not succeed, and the *Naturalists' Journal* was forced to raise its price to three pence in order to cover costs. During this time Waters was ill, and his inattention introduced a number of errors into the letterpress that led to his resignation in 1894. The remaining editors, Mosley and Ford, quickly claimed credit for the innovations while condemning the price rises, and reduced the price back to tuppence (Anon. [Mosley and Ford] 1894, 121-22). Waters founded a rival journal, the *Naturalist's Chronicle*, which although claiming to be a "Natural History Review of Reviews" and "written in the terse style preferred by readers nowadays" eschewed W. T. Stead's New Journalistic innovations and was instead an overtly religious, traditional magazine of natural history (Waters 1895, unpag.).

The frequent mergers, changes in style and format, and shifting personnel, demonstrate the desperate attempts to identify readerships and remain solvent. In the same editorial note in the *Naturalist's Journal* that announces the assumption of the editorship by Waters and Ford after Swann's resignation in

1894, there are also notices welcoming the March revival of *Science-Gossip* and the new series of the *British Naturalist*. All three titles were aimed at the same resilient community of amateur natural historians. As evinced by the editors, this community was socially diverse: for instance Linnaeus Greening, who replaced Robson as editor of the *British Naturalist*, was a successful wire manufacturer and civic dignitary, a Justice of the Peace for Cheshire, and member of the Town Council, yet he edited a journal founded by Mosley, then a working class secularist and free-thinker (Dunlop 1931). Although natural history provided a context that could elide social differences, it often only did so through a tolerance for differing conceptions of what natural history actually was. Although there was a consensual understanding of practice amongst the community from which the editors tended to be drawn, the periodicals had to recognize a much wider range of activities in the field in order to survive.

The naturalist magazines exploited the generic capacity of the periodical to incorporate distinct textual objects in order to appeal to as wide a readership as possible. This was relatively unproblematic as naturalists had interests in many branches of natural history, and contributors could often write on a range of subjects. Indeed, *Nature*, reporting on the renewed *Science-Gossip* in 1895, described it as “now one of the brightest and most diversified monthlies for the lover of science” (Anon. 1895, 253). It was not so much the disciplinary boundaries, but rather the creation of discrete spaces of study within the field or home that was divisive. *Nature*, both for the laboratory-based practice of biology and devout theologians such as Albert H. Waters, was a unity, and that unity was strained by the multiple readings demanded of it.

The journals contain at least three discrete ways of describing nature. The first corresponds to descriptions of popular science, in which a natural phenomenon or specimen is described for a non-specialist audience. These articles de-familiarize the object in order to place it within a narrative of linear scientific progress culminating in the present. For instance, John Lord’s “Feathers,” published in *Science-Gossip*, begins “[w]hen a wonderful invention is brought before us, so that we clearly see its results, are we not naturally curious as to know how these results are brought about?” (Lord 1893, 54). What follows is a description that alienates the reader from the familiar feather in order to make it a “wonderful invention.” Detailing its features, as well as the history of its scientific interrogation, this process displaces nature and instead re-writes the feather as the product of scientific practice.

Another example is Mary Morris’s “Jottings Concerning Certain Fruit Trees.” Also published in *Science-Gossip*, this is a serial that offers accounts of trees mediated by their descriptions through history. “Part IV – The Chestnut Tree” immediately de-familiarizes the plant:

This tree, said to derive its name from the town of Casthanea, at the foot of Mount Pelion – a locality where it still abounds – has a very widely extended natural habitat, being found apparently wild in extreme distant regions of the earth. (Morris 1890, 79)

She then traces the history of the chestnut tree from ancient Rome to the use of its timber in present-day England. These diversions entertain and inform, but only on the provision that the true interpretation, in this case a bathetic comparison to the number and size of the trees in the present, is finally revealed. By dislocating the tree in time and space through the historical examples, its continuity is established in spite of local variations on the basis of knowledge in the present.

In direct opposition to this are the accounts of rambles and collecting in the field. These pieces tend to be written in the first person, and are predicated on the precise location of specimens. A. H. Swinton's "The Basquet of Julia," in the same number of *Science-Gossip* as Lord's "Feathers," seeks to include the reader within the narrative with lines like "let us, then, follow and see what the season has in store" and "But what strange shouts are these that jar upon our ears?" (Swinton 1893, 51). Equally, G. Morel-Deville's "An Entomological Visit to the Canary Islands," in the *British Naturalist*, provides a narrative that combines both entomological details with a degree of masculine posturing. He describes how

you are sometimes compelled to wade knee deep in lava cinders, slipping back two steps to each one forward, and at other times to crawl up smooth blocks of lava, as slippery as glass, with a solitary and rare fig-tree here and there to help you on [...and] you come unexpectedly upon very deep fissures, ravines and precipices, when in pursuit of an insect, to the imminent risk of your neck. (Morel-Deville 1894, 233)

The breathless excitement of Morel-Deville's account attempts to sweep the reader into its narrative as companion, equally knowledgeable and fully equipped to enjoy the adventure.

The scientific aspect of the rambles, in which observations are linked to a specific time and space, is thus intertwined with personal details that narrate these observations through the body of the naturalist. The act of sharing these accounts creates relationships based on common experiences that complement those bonds formed by the exchange of specimens. In his "Bird-Life," published in *Science-Gossip* in 1889, Dr Alfred J. H. Crespi ("Formerly Editor of the *Sanitary Review*") recalls:

Several years ago, after a dispiriting struggle with fortune, I left Birmingham and went to Exeter for six weeks. It was the 28th of April, and in South Devon the trees were in full leaf and summer was come. (Crespi 1889, 15)

As he insists “[y]ou cannot study birds in a museum,” temporal and spatial details provide the necessary contexts within which they can be studied. But Crespi also relates the solitary pleasures of the ramble:

After the embittered strife of London, and the dingy skies and noisy streets of Birmingham, there was a seductiveness, a peacefulness, in those Devon rambles that I can never forget. Seldom did I meet any other wanderer, and for hours I seemed to have the country all to myself. (Crespi 1889, 15).

For Crespi the rejuvenating experience is as important as the birds that he discovers, and he offers both as part of the same narrative to the reader.

The third way of writing about nature is by translating idiosyncratic phenomena into a formalized space that produces quantified, exchangeable and repeatable information (Nyhart 1996, 433). Many of the contributions to the periodicals, especially by entomologists, relate the location of specimens in the field, before capturing them and studying them back at home. In “Notes on *Acherontia Atropos*” in *Science-Gossip*, W. A. Gain begins by describing the moment of capture. The present, he notes, “seems to be one of those years in which this large insect has occurred rather abundantly in the larval stage,” and to prove this he reports that his friend procured three at the beginning of August, and that he captured one himself on the 17th (Gain 1890, 15). After invoking the hunt and capture, Gain proceeds to describe his experiments. He follows his specimen from pupa to moth, noting its characteristics and the interventions he makes into its environment, before a matter-of-fact mention of its dispatch into a bottle of cyanide. His house provides the space of study: the pupa is given a flower pot to inhabit; a window sill provides warmth; and then the moth is placed into “a large cupboard.” When it escapes, Gain finds it in his cellar and, moving it to “a more secure place,” feeds it “a lump of sugar moistened with beer.” The result, he writes, “was a drunk, the moth fell on its back, legs sticky, necessitating a wash with a camel-hair pencil.” Such details are both entertaining and instructive, and Gain draws no distinction between the two as the incidents that occur are part of his investigation. When a second moth escapes the whole of the house becomes part of the experiment: after the “house was hunted from cellar to attic many times,” the moth is eventually found on his curtains but the only evidence of its activity is a disturbed flower pot containing an egg. Although Gain “cannot say” whether it is from the moth, he offers it “to any reader who can identify it” (Gain 1889, 16).

Although Gain's scientific results are inconclusive, his report and the egg are part of a distributed scientific practice that relies upon the creation of scientific spaces in the homes of his fellow readers. For Gain, local conditions play a role in reducing a mysterious specimen to a set of circumscribed behaviors which, in turn, are mapped back onto the organism. The environment thus operates like a scientific instrument, delimiting possible outcomes by imposing a controlled context. Although in Gain's case this process is rather picaresque as his environment and the organism interact in unexpected ways, his house still restricts the moth's behavior allowing him to better record it. Although experimental accounts using microscopes seem to entirely displace the location of study with microscopic space, the difference between this methodology and Gain's is simply a matter of degree: in both, one space is subordinated to another to produce a new context within which to reduce behavior to a form that is comparable across space and time.

* * *

The diverse natural objects and phenomena, and the various practices of the naturalists, necessarily inscribe multiple spatialities into the naturalist periodicals that challenge the representation of nature as a unity. Although the material forms of the journals can co-present this diversity, ideologically they are often exclusive. For instance, the accounts of rambles are predicated on the uniqueness of the event in time and space (it is the pleasure that is shared); however, the experimental accounts rely upon transforming the unique aspects of natural phenomena into generalized data that can be mapped onto essentialized forms. After experiencing a religious conversion in 1893, Seth Lister Mosley replaces this model of periodical production with one that incorporates a unified representation of nature. In order to do this, Mosley attempts to regulate the practice of his readers to ensure that they all see the same things at the same time. Through a variety of strategies, Mosley minimizes the distance between himself and his readers, thereby creating a new space: one in which the study of individual specimens reveals the Word of God.

Mosley's conversion occurred shortly after joining the editorial board of the *Naturalists' Journal*. He had formerly been an ardent secularist but his interest in natural history had led him to contemplate the unity of nature:

As I became more deeply versed in these studies I begun to see in nature not only grandeur, majesty, and beauty, but also unity, harmony, and system; I began to see how each thing worked beautifully in conjunction with every other thing, the whole forming a grand continuous chain, every link of which had its place and kept it, had its work and did it, and I found so much for which I was compelled to

feel thankful that I begun to regret that I had no God to thank (Mosley 1896a, 3-4).

Mosley's conversion was complete when, during a trip to the Lake District in August 1893, he encountered an old man "with long white beard and grey hair that laid on his shoulders; his bosom bare, no hat no shoes, and his scanty garments dripping wet" cheerfully singing (Mosley 1896a, 7). After this display of faith on the part of somebody who owned nothing, Mosley was convinced he wanted to devote his life to his evangelical mission.

After retiring as a painter-decorator, Mosley pursued a number of projects simultaneously. As well as the various publishing enterprises he was engaged upon, Mosley was also an itinerant lecturer, made cabinets of specimens for sale and for educational purposes, painted natural objects, and acted as curator of his own Economic and Educational Museum in Huddersfield. After his conversion, Mosley subordinated all of these projects to his own religious conviction. From January 1896 Mosley took over both the editing and the proprietorship of the *Naturalists' Journal*, printing it at his son's press at the museum. He then combined his other publications with the journal, beginning in volume five with the serialized monographs from his *Naturalists' Guide* and his museum's *Monthly Circular*. Mosley viewed his various publications and activities as different manifestations of the same enterprise, and they were consequently interlinked and self-referential: advertisements were usually for other Mosley publications or the museum; publications were largely written by Mosley; and he produced (and often hand-colored) all the illustrations himself. The inclusion of these other projects within the more mixed content of the *Naturalists' Journal* emphasized Mosley's vision of nature, and then pluralized examples of it. In a characteristic act of consolidation, Mosley offered this extra material to readers of the *Journal* at no extra cost. However, if they wanted the colored plates that accompanied the *Naturalists' Guide* (now a supplement to the *Journal*) they had to become subscribers to the Museum. This cost half a crown ("commencing any time") and entitled readers to receive the illustrations post-free. Although this benefit of subscription was of use to readers scattered across the country, the others—free entrance to the museum and attendance at Mosley's lectures and rambles—could only be taken up by those willing to journey to Huddersfield (Mosley 1895, iii).

The *Naturalists' Journal* became increasingly religious in tone throughout 1896. Mosley was clearly nervous about aligning it too earnestly with the religious press, especially as his main competitor, Linnaeus Greening and Joseph Smith's *British Naturalist*, was secular in tone and allied to evolutionary science. However, in the "Report" which acts as a preface to the fifth volume, he writes:

The success of the *Naturalists' Journal* since it became the organ of the Museum has been all that we could desire, and more than we expected, and I make no apology here for saying that I believe this is because I have sought a Leader, and endeavoured faithfully to follow His will as far as I could understand it. I know some "scientists" will smile at this, but let them smile: I do not enter into detail, because I simply should not be believed. It is not owing to my superior ability, for I am only an un-trained, non-schooled working man, but no less a lover of nature because I have learned to love God (Mosley 1896b, 4).

Although an affirmation of faith was certainly not incompatible with scientific practice, a direct claim of religious leadership in a study of nature immediately aligns the text with older traditions of natural theology rather than the institutionalized practices of experimental science and the naturalists who engaged with and appropriated its codes. This preface marks a point of departure for the *Naturalists' Journal*: rather than attempt to balance the various interests of his readers, Mosley is now foregrounding his own interests, and signaling the support of his readership as a ratification.

By 1898 Mosley's presence is everywhere in the *Naturalists' Journal*. Its subtitle "An Amalgamated Monthly Magazine of Scientific and Useful Natural History. The Organ of the Economic and Educational Museum, Huddersfield, and the British Field Club. Edited by the Curator S.L. Mosley" locates him at the centre of the text. The British Field Club was a Mosley affair: although it drew its president and vice president from the ranks of like-minded naturalists, Mosley's daughter was the secretary and his son was the printer, both of whom were based at the museum in Huddersfield. The volume opens with the usual "To Our Readers," but this time it shamelessly self-promotes. Mosley recounts overhearing a man claim his friend "had once spent an hour in Mr Mosley's company, and it was the brightest hour of his life," but modestly suggests when "friends read the short story of my life they must see that this cannot be due to any merit of my own" (Mosley 1899, iii). Such self-referencing continues within the monthly letterpress: departments such as 'Field Clubs and Societies' and 'British Field Club', which occasionally appear more than once in a number, advertise and report on Mosley's lectures, rambles, and classes; Mosley is so central that his birthday is on the official Field Club calendar, alongside that of Isaac Newton.

As the *Journal* becomes increasingly univocal, Mosley turns his attention to the differing reading and scientific practices of his readers. Crucial to Mosley's religious belief was the primacy of study over the avaricious collection of specimens, and so in the journal he promotes the study of live creatures, preferring to draw lessons from behavior rather than structure. However, such practices produce diverse accounts of living phenomena, often restricted to local spaces that rely on anecdotal evidence. Mosley counters this tendency through a

scheme whereby, for six shillings a year, subscribers could receive a specimen (a plant or rock) through the post, which would then be described in the text of the journal. As well as providing free advertising for Mosley's various projects, this scheme ensured his readers were studying the same specimens, in the same ways, regardless of their location. Mosley the lecturer was merged with Mosley the editor and, by instructing readers to give their completed cabinets of specimens, with textual descriptions from the *Naturalists' Journal*, to local schools, proliferated his interpretation of nature beyond that of his immediate readership.

The religious matter is mainly confined to unsigned miscellaneous pieces that surround more conventional pieces of natural history. In "Aptera," which is in a smaller typeface than the majority of the scientific content, Mosley muses that if God

created man "in his own image", that is to be pure, and if "cleanliness is next to Godliness", then we may reasonably consider that a law was and is that we should be pure, and to infringe it, as to infringe other laws in nature, sets another law in work, and brings its own punishment (Anon. [Mosley] 1898b, 83).

This reading of lice (aptera) as divine retribution for poor hygiene displaces other interpretations of nature, especially T. H. Huxley's "scene of strife, in which all the combatants fall in turn," so essential for evolutionary science (Huxley 1893, 4). Nature, for Mosley, is inherently moral and through the study of it "we come across many facts which seem to teach the same moral lesson as those taught in the great religions of the world" (Anon. [Mosley] 1898c, 143). By providing the objects of study, as well as the methodology through which to study them, Mosley attempts to reveal this underlying system of moral codes through the controlled revealing of evidence.

This is only possible if the idiosyncratic, localized accounts of Mosley's contributors are subservient to his wider discursive aims. In his "Reminiscences," published in the *Naturalists' Journal* in 1898, Mosley performs a coup which re-aligns all of his projects, including the journal, as part of his evangelical mission. The article re-writes Mosley's life as a proof that "a Divine influence has been guiding me all my life, been keeping me just outside the fold that I might acquire knowledge to lead other people in by the same gate as that by which I entered" (Anon. [Mosley] 1898a, 187). Despite being clearly autobiographical, this article is unsigned, a textual strategy that emphatically links the unsigned material in the *Journal* with Mosley's textual persona. However, his members are still located in a range of spaces beyond his control, and his British Field Club remains a textual entity, with minimum intercourse between the readers themselves. Mosley's solution is "a simultaneous system of study" in which his readers study what is written on the cover of the *Naturalists'*

Journal at the time appointed. Mosley believes the “results may be better than if we could all meet together” as there is, “undoubtedly, something which connects minds” (Anon. [Mosley] 1898d, 190). By controlling what his readers study through distributing specimens, and then dictating when they should study them, Mosley attempts to reproduce the space-time of his own scientific practice in the distributed acts of his readers.

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Natural objects must be worked upon in order to be the agents of spatial reproduction: it is through dictating the uses to which objects are put that spaces are reproduced. Henri Lefebvre (2001, 355) suggests that the “*form of centrality* which, as a form, is empty, calls for a content and attracts and concentrates particular objects.” Mosley reproduced the practice of his centre—located geographically in Huddersfield but discursively in his evangelical science—by providing objects that could supply a “locus of action” for a “sequence of operations” (Lefebvre 2001, 399). Although his ideological ends are markedly different, Mosley’s spatial strategies are surprisingly similar to those that permit the exchange of information between laboratories. What is interesting about these examples is the degree to which the ideological uses of space are constrained by the politics of magazine production. For the other naturalist magazines, the compulsion to accommodate the different interests of groups of readers was a minor difficulty as readers could select those departments that were of most interest to them, and the same reader might enjoy contradictory representations of nature. It is only when certain ways of representing space become important to the ideological goals of the magazine that the composite nature of the periodical must be more strictly controlled. For Mosley, as indeed for more specialist scientific journals such as the *Journal of Physiology*, all articles must necessarily testify to a continuity of practice: however, such a rigorous editorial policy cannot succeed without a corresponding network of readers willing to support the enterprise month after month

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